

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) An apparatus for automatic processing of at least one biological sample accommodated on at least one slide, comprising:
 - a housing frame;
 - at least one slide;
 - a plurality of drawers within the housing, each drawer comprising a respective carrier rack for supporting at least one slide;
 - a robotic reagent dispensing head within the housing that performs ongoing robotic processing, including dispensing of reagents,
 - at least one sample processing section within the housing for accommodating at least one of the plurality of drawers at least one slide with a sample, said at least one sample processing section is provided within said housing;
 - a cover for protecting said at least one sample processing section in said housing, said cover enclosing the sample processing section and defining an interior space between the housing and the cover;
 - at least one climate control device for controlling the environment within said interior space defined by the cover;
 - a sensor device for providing feedback signals to the climate control device; and

a data processing device for controlling the at least one climate control device and for storing a processing protocol, the processing protocol defining a predetermined amount of reagents to be applied in a predetermined sequence on the at least one slide

wherein a first sample, in a first drawer, for which the processing is completed may be removed from the apparatus without interrupting the ongoing robotic processing of a second sample in a second drawer, and

wherein a second sample, in a second drawer, may be inserted into the apparatus without interrupting the dispensing of reagents onto a first sample, in a first drawer, with the robotic reagent dispensing head.

2. (Previously Presented) An apparatus according to claim 1, wherein the sensor device is adapted to sense at least one climate parameter from the group consisting of temperature, pressure, humidity, airspeed and the presence of toxic elements in fume.

3. (Previously Presented) An apparatus according to claim 1, wherein the sensor device comprises internal sensors located inside the interior space.

4. (Currently Amended) An apparatus according to claim 1, further comprising an air inlet/outlet manifold, wherein the sensor device comprises external sensors located at or inside an the air inlet/outlet manifold, in a laboratory facility accommodating the apparatus, or outside a building accommodating the laboratory.

5. (Previously Presented) An apparatus according to claim 1, wherein the cover comprises at least one openable hood pivotably attached to the housing frame.

6. (Previously Presented) An apparatus according to claim 1, wherein the cover is integral with the housing frame.

7. (Previously Presented) An apparatus according to claim 1, wherein the cover comprises a plurality of covers arranged to cover a plurality of sections of the apparatus, including the at least one biological sample accommodated on the at least one slide in the at least one processing section.

8. (Previously Presented) An apparatus according to claim 7, wherein a plurality of interior spaces of the apparatus is defined by said plurality of covers, each interior space including at least one section arranged for comprising at least one sample on the at least one slide and/or at least one section arranged for comprising at least one reagent in a container.

9. (Previously Presented) An apparatus according to claim 8, wherein the at least one climate control device controls the climate of the at least one biological sample on the at least one slide in each interior space according to the processing protocol defined for that particular sample.

10. (Previously Presented) An apparatus according to claim 9, wherein the sensor device comprises internal sensors and external sensors, and wherein the at least one climate control device receives input signals from the internal and/or external sensors and controls the climate in each interior space according to the input signals.

11. (Currently Amended) An apparatus according to claim 8, wherein the data processing device data comprises a computer at least one climate control device is connected for data communication with a computer, wherein the protocol for the processing of the particular sample is stored, and where from control data are provided to the climate control device.

12. (Currently Amended) An apparatus according to claim 1, wherein the at least one climate control device includes a pressure control device for controlling at least the pressure and ensures and configured to provide a slight sub-pressure within the interior space.

13. (Currently Amended) An apparatus according to claim 1, wherein the at least one climate control device includes a pressure control device for controlling at least the pressure and ensures and configured to provide a slightly higher pressure within the interior space.

14. (Previously Presented) An apparatus according to claim 1, wherein the at least one climate control device includes a humidity controller within the interior space.

15. (Previously Presented) An apparatus according to claim 1, wherein the at least one climate control device includes a temperature control device for controlling the ambient temperature of the air within the interior space.

16. (Previously Presented) An apparatus according to claim 1, wherein the climate control device comprises a ventilation system with an exhaustion device having a plurality of ducts for exchanging the air in the interior space.

17. (Previously Presented) An apparatus according to claim 16, wherein the ventilation system comprise a fan in an air inlet opening in the housing frame through which air may be exchanged.

18. (Previously Presented) An apparatus according to claim 17, further comprising at least one air manipulation device with the air inlet opening for adapting the air temperature, pressure, air flow rate, and humidity of the inflowing air into the apparatus.

19. (Previously Presented) An apparatus according to claim 1, wherein the climate control device comprises an exhaustion device with an outlet for removing fumes from the interior space.

20. (Previously Presented) An apparatus according to claim 1, wherein the climate control device is a device for recycling air for humidity, temperature, and toxic control, a device for removing toxic elements from the air to be recycled, a device for supplying humidity to the air to be recycled, or a heater/cooling device for controlling the temperature of the air to be recycled.

21. (Original) An apparatus according to claim 20, wherein the device configured to recycle air comprises a filter capable of cleaning and/or humidifying the air.

22. (Currently Amended) An apparatus according to claim 19, wherein said exhaustion device is adapted to draw air from the outlet is positioned below a level in which the at least one slide is accommodated and said exhaustion device is adapted to draw air from the outlet.

23. (Currently Amended) An apparatus according to claim 19, wherein said exhaustion device is adapted to draw air from the outlet is positioned above a level in which the at least one slide is accommodated and said exhaustion device is adapted to draw air from the outlet.

24. (Previously Presented) An apparatus according to claim 1, wherein said cover is provided with at least one seal element to provide an air tight seal between the cover means and the housing.

25. (Currently Amended) An apparatus according to claim 1, wherein the housing frame comprises at least one air inlet opening for supplying air into the interior space, and

wherein the ~~apparatus~~ climate control device comprises an air manipulation device for adapting the inflowing air with predetermined characteristics, the air manipulation device being provided in the at least one air inlet opening.

26. (Previously Presented) An apparatus according to claim 25, wherein said air manipulation device comprises an a humid filter device for ensuring high and uniform humidity in the chamber when the inflowing air is drawn through the humid filter device.

27. (Original) An apparatus according to claim 25, wherein the air manipulation device controls humidity by spraying water droplets or having a water surface.

28. (Previously Presented) An apparatus according to claim 25, wherein the air manipulation device comprises an air recycling device with filters, the recycled air [[is]] being drawn through the filters to remove fumes and adjust the humidity.

29. (Original) An apparatus according to claim 25, wherein the air manipulation device controls the humidity to never be below a predetermined level, to prevent drying out of the sample.
30. (Previously Presented) An apparatus according to claim 25, wherein the air manipulation device comprises an air additive supply device in the at least one air inlet opening for adding disinfectants, UV protectants or other compounds to the inlet air to prevent microbial growth or discolouring.
31. (Previously Presented) An apparatus according to claim 25, wherein the air manipulation device comprises an air additive supply device in the at least one air inlet opening for addition of fluids from the group consisting of reagents, neutral gas, oxygen, carbon dioxide, nitrogen, water droplets, and formamide.
32. (Currently Amended) An apparatus according to claim 1, wherein the sensor device registers one or more parameters of the air in interior space of the apparatus, said sensor device being arranged in a vicinity of the cover and/or in a vicinity of the at least one slide on a ~~slide rack assembly~~ a carrier rack.
33. (Withdrawn) A method of automatically processing one or more biological samples accommodated on a carrier member, such as a slide, by applying a predetermined amount of reagents in a predetermined sequence according to a

processing protocol in an automatic sample processing apparatus, comprising the steps of:

measuring at least one air characteristic inside an interior space in which at least one carrier member is provided inside a cover enclosing the samples accommodated in the apparatus, and

ventilating said interior space and controlling said apparatus according to a predetermined processing environment defined in a processing control procedure, said ventilation including exchanging air through at least one air inlet and air outlet.

34. (Withdrawn) A method according to claim 33, wherein the inlet air is drawn through a humid filter device of the air manipulation device to ensure high and uniform humidity in the chamber.

35. (Withdrawn) A method according to claim 33, wherein the humidity is controlled by spraying water droplets or having a water surface.

36. (Withdrawn) A method according to claim 33, wherein recycled air is drawn through filters to remove fumes and filters to adjust the humidity.

37. (Withdrawn) A method according to claim 33, wherein the humidity is controlled to never be below a predetermined level, to prevent drying out of the sample.

38. (Withdrawn) A method according to claim 33, wherein disinfectants, UV protectants or other compounds may be added to the inlet air to prevent microbial growth or discolouring.

39. (Withdrawn) A method according to claim 33, wherein the air manipulation device comprises air additive supply device arranged for addition of fluids from the group consisting of reagents, neutral gas, oxygen, carbon dioxide, nitrogen, water droplets, and formamide.

✓ 40. (Currently Amended) An apparatus for automatic staining of at least one biological sample accommodated on at least one slide, comprising:

a housing frame;

at least one slide;

a plurality of drawers within the housing, each drawer comprising a respective carrier rack for supporting at least one slide;

a robotic reagent dispensing head within the housing that performs ongoing robotic processing, including dispensing of reagents,

at least one staining section within the housing for accommodating at least one of the plurality of drawers at least one slide with a sample, said at least one staining section being provided within said housing;

a cover for protecting said at least one staining section in said housing, said cover enclosing the staining section and defining an interior space between the housing and the cover;

at least one climate control device configured to control the environment within said interior space defined by the cover;

a sensor device providing feedback signals to the climate control device; and

a data processing device for controlling the at least one climate control device and for storing a processing protocol, the processing protocol defining a predetermined amount of reagents to be applied in a predetermined sequence on the at least one slide

wherein a first sample, in a first drawer, for which the processing is completed may be removed from the apparatus without interrupting the ongoing robotic processing of a second sample in a second drawer, and

wherein the second sample, in the second drawer, may be inserted into the apparatus without interrupting the dispensing of reagents onto the first sample, in the first drawer, with the robotic reagent dispensing head.

41. (Previously Presented) An apparatus according to claim 40, wherein the sensor device is adapted to sense at least one climate parameter from the group consisting of temperature, pressure, humidity, airspeed and the presence of toxic elements in fume.

42. (Previously Presented) An apparatus according to claim 40, wherein the sensor device comprises internal sensors located inside the interior space.

43. (Currently Amended) An apparatus according to claim 40, further comprising an air inlet/outlet manifold, wherein the sensor device comprises external sensors located at or inside ~~an~~ the air inlet/outlet manifold, in a laboratory facility accommodating the apparatus, or outside a building accommodating the laboratory.

44. (Previously Presented) An apparatus according to claim 40, wherein the cover comprises at least one openable hood pivotably attached to the housing frame.

45. (Previously Presented) An apparatus according to claim 40, wherein the cover is integral with the housing frame.

46. (Previously Presented) An apparatus according to claim 40, wherein the cover comprises a plurality of covers arranged to cover including at least one biological sample accommodated on the at least one slide in the at least one processing section.

47. (Previously Presented) An apparatus according to claim 46, wherein a plurality of interior spaces of the apparatus is defined by said plurality of covers, each interior space including at least one section arranged for comprising at least one sample on the at least one slide and/or at least one section arranged for comprising at least one reagent in a container.

48. (Previously Presented) An apparatus according to claim 47, wherein the at least one climate control device controls the climate of the at least one biological

sample on the at least one slide in each interior space according to the processing protocol defined for that particular sample.

49. (Previously Presented) An apparatus according to claim 48, wherein the sensor device comprises internal sensors and external sensors, and wherein the at least one climate control device receives input signals from the internal and/or external sensors and controls the climate in each interior space according to the input signals.

50. (Currently Amended) An apparatus according to claim 47, wherein the data processing device data processing device comprises a computer at least one ~~climate control device is connected for data communication with a computer, wherein the protocol for the processing of the particular sample is stored, and where from control data are provided to the climate control means.~~

51. (Currently Amended) An apparatus according to claim 40, wherein the at least one climate control device includes a pressure control device for controlling at least the pressure and ensures and configured to provide a slight sub-pressure within the interior space.

52. (Currently Amended) An apparatus according to claim 40, wherein the at least one climate control device includes a pressure control device for controlling at

least the pressure and ensures and configured to provide a slightly higher pressure within the interior space.

53. (Previously Presented) An apparatus according to claim 40, wherein the at least one climate control device includes a humidity controller within the interior space.

54. (Previously Presented) An apparatus according to claim 40, wherein the at least one climate control device includes a temperature control device for controlling the ambient temperature of the air within the interior space.

55. (Previously Presented) An apparatus according to claim 40, wherein the climate control device comprises a ventilation system with an exhaustion device having a plurality of ducts for exchanging the air in the interior space.

56. (Previously Presented) An apparatus according to claim 55, wherein the ventilation system comprise a fan in an air inlet opening in the housing frame through which air may be exchanged.

57. (Previously Presented) An apparatus according to claim 56, further comprising at least one air manipulation device with the air inlet opening for adapting the air temperature, pressure, air flow rate, and humidity of the inflowing air into the apparatus.

58. (Previously Presented) An apparatus according to claim 40, wherein the climate control device comprises an exhaustion device with an outlet capable of removing fumes from the interior space.

59. (Previously Presented) An apparatus according to claim 40, wherein the climate control device is a device capable of recycling air for humidity, temperature, and toxic control, a device capable of removing toxic elements from the air to be recycled, a device capable of supplying humidity to the air to be recycled, or a heater/cooling device capable of controlling the temperature of the air to be recycled.

60. (Previously Presented) An apparatus according to claim 59, wherein the device configured to recycle air comprises a filter capable of cleaning and/or humidifying the air.

61. (Currently Amended) An apparatus according to claim 58, wherein said exhaustion device is adapted to draw air from the outlet is positioned below a level in which the at least one slide is accommodated and said exhaustion device is adapted to draw air from the outlet.

62. (Currently Amended) An apparatus according to claim 58, wherein said exhaustion device is adapted to draw air from the outlet is positioned above a level in

which the at least one slide is accommodated and said exhaustion device is adapted to draw air from the outlet.

63. (Previously Presented) An apparatus according to claim 40, wherein said cover is provided with at least one seal element to provide an air tight seal between the cover means and the housing.

64. (Currently Amended) An apparatus according to claim 40, wherein the housing frame comprises at least one air inlet opening for supplying air into the interior space, and

wherein the apparatus climate control device comprises an air manipulation device for adapting the inflowing air with predetermined characteristics, the air manipulation device being provided in the at least one air inlet opening.

65. (Previously Presented) An apparatus according to claim 64, wherein said air manipulation device comprises a humid filter device wherein the inlet air is drawn through said humid filter device to ensure high and uniform humidity in the chamber.

66. (Previously Presented) An apparatus according to claim 64, wherein the air manipulation device controls humidity by spraying water droplets or having a water surface.

67. (Previously Presented) An apparatus according to claim 64, wherein the air manipulation device comprises an air recycling device with filters, the recycled air being drawn through the filters to remove fumes and adjust the humidity.

68. (Previously Presented) An apparatus according to claim 64, wherein the air manipulation device controls the humidity to never be below a predetermined level, to prevent drying out of the sample.

69. (Previously Presented) An apparatus according to claim 64, wherein the air manipulation device comprises an air additive supply device in the at least one air inlet opening for adding disinfectants, UV protectants or other compounds to the inlet air to prevent microbial growth or discolouring.

70. (Previously Presented) An apparatus according to claim 64, wherein the air manipulation device comprises an air additive supply device in the at least one air inlet opening for addition of fluids from the group consisting of reagents, neutral gas, oxygen, carbon dioxide, nitrogen, water droplets, and formamide.

71. (Currently Amended) An apparatus according to claim 40, wherein the sensor device registers one or more parameters of the air in interior space of the apparatus, said sensor device being arranged in a vicinity of the cover and/or in a vicinity of the at least one slide on a ~~slide rack assembly~~ a carrier rack.